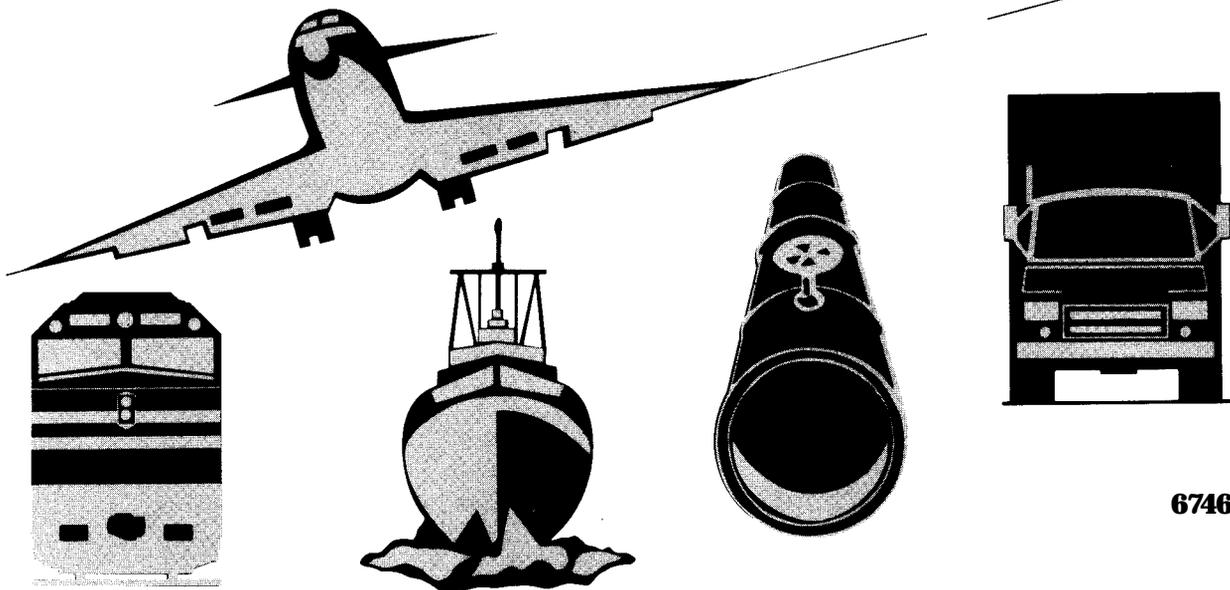


NATIONAL TRANSPORTATION SAFETY BOARD

WASHINGTON, D.C. 20594

MARINE ACCIDENT/INCIDENT SUMMARY REPORT

**CAPSIZING OF QUESTAR MOTORBOAT AND
DROWNING OF OPERATOR SOUTH OF SHELTER
ISLAND NEAR JUNEAU, ALASKA
AUGUST 21,1994**



Abstract: This summary report discusses a 1994 fatal accident in which a disabled 18-foot Questar motorboat with the vessel's owner and one passenger aboard capsized while being towed by the Coast Guard Auxiliary vessel PUPPET near Juneau, Alaska.

The safety issues discussed in this report are communications during the 1994 Golden North Salmon Derby, policy on the use of Coast Guard Auxiliary resources in hazardous weather and sea conditions, policy on removal of passengers from towed vessels, risk assessment training of Coast Guard Auxiliary personnel involved in search and rescue operations, and policy on postaccident toxicological testing of Coast Guard Auxiliary personnel involved in marine accidents.

The National Transportation Safety Board is an independent Federal agency dedicated to promoting aviation, railroad, highway, marine, pipeline, and hazardous materials safety. Established in 1967, the agency is mandated by Congress through the Independent Safety Board Act of 1974 to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The Safety Board makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

Information about available publications may be obtained by contacting:

**National Transportation Safety Board
Public Inquiries Section, RE-51
490 L'Enfant Plaza, S.W.
Washington, D.C. 20594
(202) 314-6551**

Safety Board publications may be purchased, by individual copy or by subscription, from:

**National Technical Information Service
5285 Port Royal Road
Springfield, Virginia 22161
(703) 487-4600**



**National Transportation
Safety Board
Washington, D.C. 20594**

MARINE ACCIDENT/INCIDENT SUMMARY

Accident Number: DCA-95-MM-032

Accident Vessel Owner/Operator: Kirby G. Dale

Vessels: Questar motorboat, 18 feet 6 inches long, Alaska State No. AK 9955K, fiberglass hull and deckhouse, built in 1987
Coast Guard Auxiliary Vessel PUPPET, O.N. 681658, 48 feet long, 36 gross tons, built in 1985, uninspected

Accident Type: Capsizing

Location: Immediately south of Shelter Island on Lynn Canal near Juneau, Alaska

Date: August 21, 1994

Time: 1433 (Local)

Property Damage: Approximately \$10,000

Injuries: 1 Death

Accident Vessel Complement: 1 Operator
1 Passenger

On August 21, 1994, a disabled 18-foot Questar motorboat with the vessel's owner and one passenger on board capsized while being towed by the Coast Guard Auxiliary vessel PUPPET immediately south of Shelter Island, Lynn Canal, near Juneau, Alaska. The Questar's owner, who was mildly disabled, was trapped inside the vessel's cabin and was drowned. The passenger was not injured.

In examining the Coast Guard's safety management during the 1994 Golden North Salmon Derby and the incident involving the Questar, the Safety Board identified five significant safety issues: communications during the derby, policy on the use of Coast Guard Auxiliary resources in hazardous weather and sea conditions, policy on removal of passengers from towed vessels, risk assessment training of Coast Guard Auxiliary personnel involved in search and rescue operations, and policy on postaccident toxicological testing of Coast Guard Auxiliary personnel involved in marine accidents.

INVESTIGATION AND ANALYSIS

THE ACCIDENT

During the morning and early afternoon of August 21, 1994, two men, the owner/operator, 45, and his passenger, 26, aboard an 18-foot Questar motorboat (see figures 1 and 2), were participating in the Golden North Salmon Derby south of Shelter Island, Lynn Canal, near Juneau, Alaska (see figure 3). The derby is an annual 3-day fishing tournament held in the Juneau area to raise scholarship funds. The Coast Guard estimated that up to 1,000 vessels would participate in the derby. The weather was overcast with showers, the wind was out of the south at 25-30 knots, and the seas were 3-5 feet. Sea water temperature was about 55 °F. The National Weather Service in Juneau had issued a small craft advisory¹ for the Eastern Gulf Coast of Alaska, including the Lynn Canal and area around Juneau.

Shortly after noon, the operator of the Questar tied the motorboat to the fish packing vessel KAMILAR, anchored near the south end of Shelter Island, to discharge his catch of fish. While next to the KAMILAR, the Questar took on water over its side from boarding seas. About 1230, as the Questar was pulling away from the KAMILAR, the outboard engines stopped. The motorboat drifted southwesterly toward Admiralty Island for 30-45 minutes as the crew made numerous unsuccessful attempts to restart the engines. The Questar's operator did not have a radio and flagged down a nearby recreational boat, the IDLE HOURS, to ask for help. The Questar's operator asked the IDLE HOURS' operator to call the Coast Guard for assistance. The IDLE HOURS was unable to reach the Coast Guard by VHF/FM radio because of the volume of traffic on channel 16, the VHF

calling and distress frequency monitored by the Coast Guard.

The Coast Guard Auxiliary vessel PUPPET, a 48-foot Nordic fiberglass motorboat, was standing by in the Saginaw Channel on the west side of Shelter Island. The PUPPET was under the tactical control of Coast Guard Station Juneau in support of the 1994 Golden North Salmon Derby. The PUPPET was under the command of a Coast Guard Auxiliary operator, whose wife, an Auxiliary Boat Crew Member, comprised the crew. Both individuals, who were the vessel's owners, had 17 years of experience in the Coast Guard Auxiliary and, together, almost 350 patrols and 30 towing assists. Also aboard the PUPPET that day were four guests: a Coast Guard Chief Radioman assigned to the Coast Guard 17th District Communication Center in Juneau, his wife, and their two children.

The Chief Radioman overheard the IDLE HOURS' radio call to the 17th District Communication Center relaying the Questar's request for assistance. He helped the two parties shift their radio conversation to a Coast Guard working frequency, channel 22, normally used by the 17th District Communication Center. The PUPPET's operator was fishing off the stern of his vessel at the time and was unaware of these radio conversations.

The operator of the IDLE HOURS indicated to the Coast Guard that his vessel did not have sufficient power to tow the Questar to Auke Bay, a small harbor about 5 nautical miles southeast of the south end of Shelter Island. The Coast Guard Chief Radioman aboard the PUPPET radioed the 17th District Communication Center and stated that he was familiar with the Questar and that the PUPPET would be on-scene within the hour to assist. The Chief Radioman informed the PUPPET's operator that he had just committed the

¹A small craft advisory is a notice that alerts mariners to sustained weather or sea conditions that might be hazardous to small vessels.



Figure 1 -- Profile of 18-foot Questar, starboard bow



Figure 2 -- Questar cabin from stern, starboard. After cabin bulkhead partially missing.

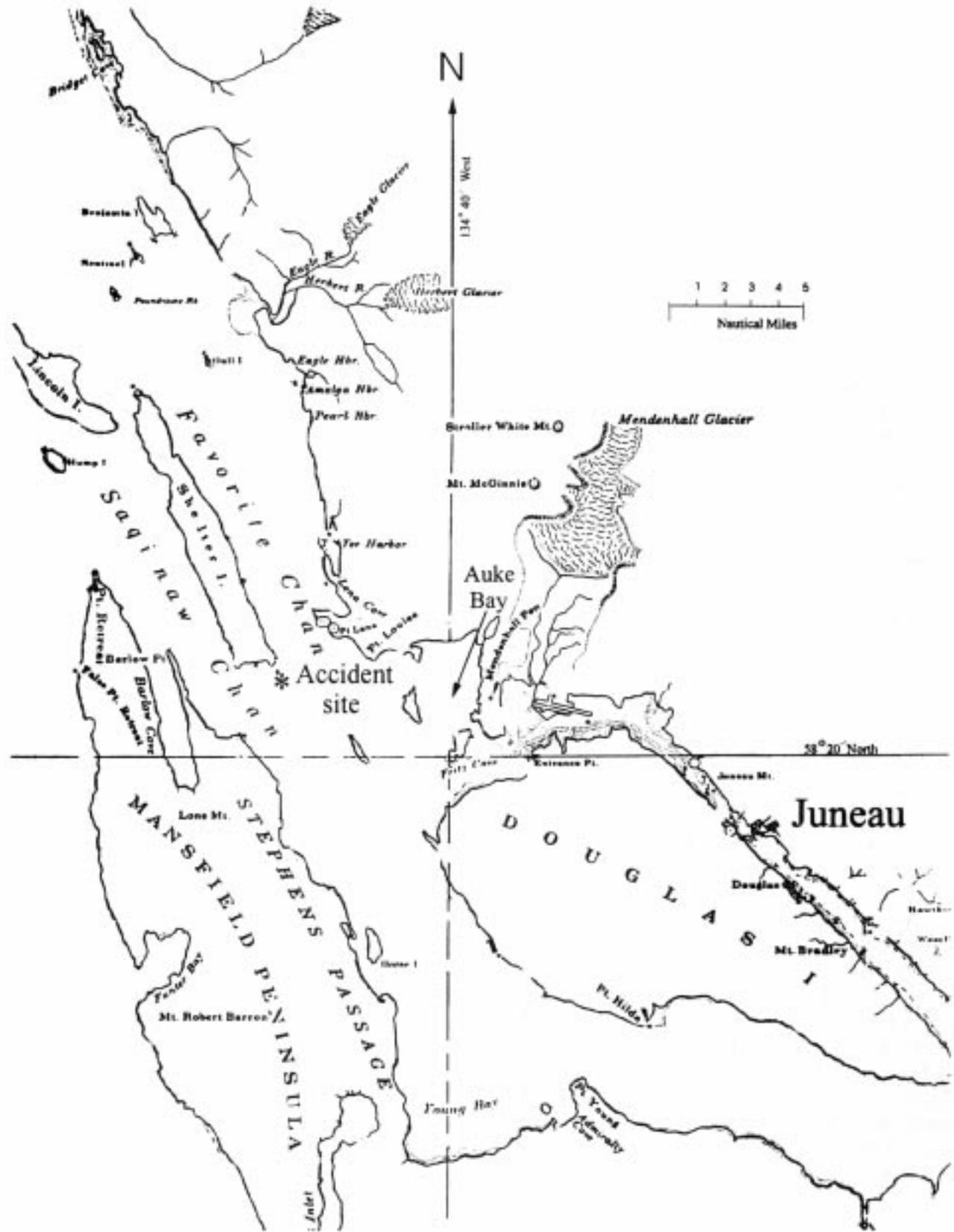


Figure 3 -- Location of the accident (not to scale)

PUPPET to a case, and the vessel got under way shortly thereafter.

As the PUPPET motored toward the south end of Shelter Island, the operator directed that the towline and bridle be laid out on the afterdeck. He discussed the upcoming tow with the Coast Guard Chief Radioman, who mentioned that he had seen the Questar before.

The operator stated that he believed his guest, the Chief Radioman, was experienced in small boat search and rescue (SAR) and that he therefore did not question him about picking up the Questar. The Chief Radioman later told investigators that his career was in the communications field and that he had little practical seamanship experience in small boat SAR operations. In effect, the operator of the PUPPET allowed the Chief Radioman to assume the responsibilities assigned to the PUPPET's Auxiliary crewmember. Coast Guard policy prohibits guests' involvement in Auxiliary patrol activities.

Meanwhile, the IDLE HOURS had towed the Questar back to the KAMILAR and secured the vessel alongside, initially tying it to the weather side of the KAMILAR. The Questar's low freeboard and open decks allowed seas to flood the vessel, requiring that the crew bail out the water and run the bilge pump. The Questar was eventually moved to the leeward side of the KAMILAR to await the arrival of the PUPPET.

About 1425, the PUPPET arrived on scene and prepared to take the Questar in tow. The PUPPET's operator did not discuss alternatives to being towed, the Questar's condition, or the physical condition of the Questar's operator and passenger. The Auxiliary operator of the PUPPET was unaware that the Questar had flooded and was susceptible to flooding from rough seas and that the Questar's operator had medical disabilities.² After advising the vessel's occupants to don their personal flotation devices

(PFDs), the PUPPET's operator and the Chief Radioman passed the towline to the passenger on the Questar's bow, directing him to tie the towline around the anchor windlass. They did not consider the stem padeye of the Questar's trailer hitch as an alternate attachment point for the towline. The operator of the PUPPET then directed the Chief Radioman to advise the Questar's two occupants to go to the stern of the vessel; they were to wave their hands to communicate with the crew of the PUPPET if a problem developed during the tow. The PUPPET's operator did not set a towing watch.

The Chief Radioman recalled that as the tow was getting under way, he looked back on the Questar and determined that everything looked "OK" to him. He admitted that he had difficulty seeing what was happening on the Questar at the end of a 150-foot towline. He did notice that only one of the Questar's crewmembers was still at the vessel's stern. He stated that the second crewmember might have moved into the vessel's cabin, a box-like structure fitted with smoked glass windows. The cabin was fitted with an accordion-style fiberglass (folding) door that provided access to the bow area and a second door (sliding glass) that opened to the stern. The afterdoor was open when the vessel was taken in tow.

At 1430, the PUPPET's operator reported to the 17th District Communication Center that he had taken the Questar in tow heading for Auke Bay and that he would relay an estimated time of arrival when he had determined what speed he was able to make. He did not provide a situation report to Station Juneau, his patrol commander.

The PUPPET and tow initially steered a southeasterly course toward Auke Bay through an area marked by the confluence of Favorite and Saginaw Channels. Sea conditions in this area were confused, with chop and breaking waves. When the Questar was about 150 feet from the KAMILAR, the PUPPET's Auxiliary crewmember noticed that the Questar was down by the bow and alerted the operator to slow down. After a wave suddenly broke over the

²The Questar's operator had mild cerebral palsy, was under medication for epileptic seizures, and had a left clubfoot.

Questar's bow, the vessel assumed a bow-down attitude, flooding the foredeck.

The passenger, who was sitting at the stern of the Questar, stated that he shouted to the operator to get out of the cabin and reached out to grab his wrist. Before the operator could exit the cabin, a second wave broke over the bow, causing the bow to submerge. Water swept aft, collapsing the deckhouse front accordion door and flooding the cabin. The passenger later stated that he tried unsuccessfully to pull the operator out of the cabin and that the next thing he knew, he was floating in the channel. Shortly thereafter, he observed the Questar, now full of water, slowly roll to starboard and capsize. The passenger was rescued within minutes by one of the boats that had been discharging fish to the KAMILAR at the time of the accident.

When the PUPPET's operator, who was steering from the flying bridge, realized what had happened to the Questar, he reversed engines, causing the towline to become fouled in one of the propellers. The maneuverability of the PUPPET was thereby restricted, and it was unable to participate in the rescue effort. The PUPPET, with one shaft, later proceeded to Auke Bay.

The master of the KAMILAR stated he had observed the events that occurred between the time the Questar was taken in tow and the subsequent attempt to rescue the operator trapped in the vessel's cabin. The master noticed the PUPPET's operator turn the tow in the direction of Auke and increase speed. He further stated that when the PUPPET increased speed, he became concerned and tried to contact the vessel using VHF/FM radio (channel 16) to advise the operator that he needed to slow down. Before the master could get through, the Questar capsized. At 1434, the KAMILAR's master radioed the 17th District Communication Center to advise them what had happened and that assistance was needed. The 17th District Communication Center immediately issued a PAN³ on channel 16 describing the incident and

³A voice communication practice indicating that the calling station has a very urgent message to transmit

requesting that any vessel in the area help with the rescue.

Shortly after notifying the Coast Guard of the accident, the KAMILAR's master launched one of his small boats to try to right the Questar and extract its operator. When the master realized that efforts to right the vessel would not be successful, he weighed anchor and maneuvered the KAMILAR alongside the Questar so that he could use the KAMILAR's seine winch to lift the Questar's bow out of the water. He was able to raise the Questar far enough out of the water to allow crewmembers from the KAMILAR to remove the operator from the Questar's cabin. About 25 minutes after the initial capsizing of the Questar, the unconscious operator was carried to the deck of the KAMILAR, where one of the crewmen who was a certified emergency medical technician (EMT) immediately initiated CPR. According to the EMT, the Questar's operator was not breathing and had no pulse; his skin color was blue.

Station Juneau's 25-foot patrol boat, responding to the PAN, arrived at this point, and a Coast Guard EMT joined the attempt to revive the operator. The Coast Guard EMT provided a medical kit from the patrol boat containing a positive-pressure oxygen delivery system used for CPR, but the system's oxygen tank was empty and the EMTs continued with manual CPR.

At 1507, the unconscious operator was transferred to Station Juneau's 25-foot patrol boat and taken to Auke Bay, where he was transferred to a waiting ambulance and transported to Bartlett Memorial Hospital. CPR was administered continuously during the trip to the hospital. He was pronounced dead at 2141 that evening. An autopsy indicated drowning as the cause of death.

No evidence indicated fatigue, alcohol, or drug involvement in this accident. Except for

concerning the safety of a ship or person.

the autopsy on the Questar's deceased operator, no toxicological testing was conducted.

SAFETY ISSUES

In examining the Coast Guard's safety management during the 1994 Golden North Salmon Derby and the incident involving the Questar, the Safety Board identified five areas of concern: communications during the derby, policy on the use of Coast Guard Auxiliary resources in hazardous weather and sea conditions, policy on removal of passengers from towed vessels, risk assessment training of Coast Guard Auxiliary personnel involved in SAR, and policy on postaccident toxicological testing of Coast Guard Auxiliary personnel involved in marine accidents.

Coast Guard Communications

The Safety Board found deficiencies in Coast Guard communications during the 1994 Golden North Salmon Derby that compromised the Coast Guard's ability to effectively discharge its SAR mission responsibilities in the Juneau area.

The Coast Guard estimated that approximately 1,000 vessels participated in the derby, yet discipline over the use of VHF/FM radio channel 16 was minimal. Legitimate traffic, such as the IDLE HOURS' initial call for assistance to the Coast Guard, was suppressed by the sheer volume of radio operators using channel 16 and by operators with more powerful radios. The Coast Guard made no attempt to minimize inappropriate use of channel 16 on August 21, 1994. Planning for the use of one or more public working frequencies during special events such as the derby could have alleviated the congestion on channel 16, the Coast Guard's distress, safety, and calling frequency.

During the 1994 derby, a period of high-volume VHF/FM traffic, the 17th District Communication Center became a choke point for the flow of radio communication information. When reports of the Questar's capsizing were being radioed, a second Coast

Guard Auxiliary vessel, the FAERING, also assigned to Station Juneau for patrol during the derby, was responding to a medical case in the Shelter Island area. The FAERING reported to the 17th District Communication Center that it was under way to Auke Bay with a patient. This report was the first one indicating that a second Auxiliary vessel was responding to an assist case, and the Coast Guard did not quickly resolve the confusion among SAR personnel over which victim was associated with which incident. In addition, more than 2 hours passed before SAR controllers realized that the Questar's passenger had not been accounted for after the Questar capsized. In fact, the passenger had already been transported to Auke Bay and questioned by Station Juneau personnel. Station Juneau did not inform Group Ketchikan or 17th District SAR personnel of this fact.

During its review of communication records, the Safety Board found that SAR personnel accepted and passed on inaccurate information without question or verification. At one point, Group Ketchikan, the SAR mission coordinator, briefed 17th District SAR personnel that a helicopter from Coast Guard Air Station Sitka, Alaska, was on the way to the accident site, that the FAERING was transporting the Questar's passenger to rendezvous with an ambulance, and that Station Juneau's 25-foot patrol boat was en route to Auke Bay to pick up a dive team, none of which was accurate. No one individual in the SAR communication network verified and assessed the streams of information for quality or significance during the Questar's response.

Coast Guard Group Ketchikan had issued a 1994 Golden North Salmon Derby operational order that assigned Coast Guard Station Juneau as patrol commander of all support units, including four Coast Guard Auxiliary vessels, in its area of tactical control. Station Juneau's primary means of communication with units under its control was VHF/FM radio. However, Station Juneau was unable to communicate with its units reliably because of poor VHF/FM radio reception attributable to the location of its

antenna and high mountains in the area that blocked radio signals. For all practical purposes, Station Juneau was unable to exercise command over resources responding to marine incidents in its area.

Before the Questar capsized, Station Juneau was unaware that two of its Auxiliary vessels, the PUPPET and the FAERING, were proceeding with assist cases. Moreover, the PUPPET's operator did not confirm with Station Juneau, the patrol commander, his intention to tow the Questar, although both the 1994 Golden North Salmon Derby operational order and a directive issued by the derby's Juneau Auxiliary Flotilla Commander required that he do so. The operator of the FAERING, also attached to Station Juneau, failed on several occasions to obtain authorization from Station Juneau before providing assistance to boaters in distress.

The Safety Board believes that had Station Juneau been provided with reliable radio communication capability, allowing it to talk with units in its patrol area, the Coast Guard's confusion in responding to the Questar's request for assistance and subsequent capsizing could have been minimized.

Policy on Use of Auxiliary Resources in Hazardous Conditions

The Safety Board found that the Coast Guard 17th District does not have a policy on use of the Auxiliary in assist cases involving hazardous weather and sea conditions. The Executive Petty Officer at Station Juneau stated that the station limits such assist operations to calm seas and daylight hours. The Coast Guard's *Auxiliary Boat Crew Qualification Guide*, COMDINST M16798.21, defines calm seas as waves of 1 foot or less. It defines heavy seas as waves of 4 feet or more. At the time of the accident, Group Ketchikan had a draft document⁴ specifying that under no

⁴Appendix 8 to annex E from Group Ketchikan's standard operating procedure, which was in draft at the time of the Questar accident, reflected Group Ketchikan's policy for use of the Auxiliary. Since the accident, the 17th Coast Guard District has reorganized, and Group Ketchikan has been eliminated.

circumstances should Auxiliary vessels be used in severe or adverse conditions. Neither *adverse* nor *severe* were defined.

The National Weather Service in Juneau was predicting winds up to 25 knots and seas as high as 5 feet, for the Juneau area on the day of the accident. Before the capsizing of the Questar, Station Juneau had reminded Group Ketchikan that the station's 25-foot boat was on patrol near Shelter Island and was available for use. Coast Guard boat crews are regularly trained and tested in towing under hazardous conditions. Auxiliary operators, on the other hand, meet a much less demanding training requirement to maintain qualification.

Nonetheless, the Auxiliary vessel PUPPET was allowed to respond to the Questar's request for assistance without SAR personnel having made a proper assessment of the Auxiliary operator's capabilities and limitations, the risks involved, or other response options available, as is required under Coast Guard SAR procedures.⁵ The PUPPET's operator stated that the decision whether or not to tow was entirely his to make. He was unaware that Station Juneau and Group Ketchikan had policies restricting his authority to accept assist cases.

The Coast Guard, responding to downsizing pressure, plans to shift more of its small boat operational workload from regular Coast Guard units to Auxiliary resources. The Safety Board believes that this accident demonstrates a need to clearly define limits in the use of Auxiliary resources when weather and sea dictate the use of better trained and equipped regular Coast Guard units.

⁵*Coast Guard National Search and Rescue Manual*, COMDTINST M16120.5A.

Policy on Removal of Passengers from Towed Vessels

The Safety Board is concerned that existing Coast Guard policy on removal of passengers before towing allows on-scene response personnel too much discretion. Although its SAR towing doctrine gives primacy to the safety of passengers during a towing operation, the Coast Guard does not have a policy for mandatory removal of passengers from towed vessels, assuming conditions are safe to do so. Rather, its policy⁶ is to remove all occupants from the disabled boat, if necessary.

The Auxiliary operator of the PUPPET assumed he had been directed to tow the Questar to Auke Bay. He discussed the upcoming tow with his guest, the Chief Radioman, and, based on the information available to him, decided not to remove the operator and passenger. The PUPPET's operator believed the tow was routine and that the Questar's operator and passenger were in no danger if they remained on their vessel during the operation. He neither determined the physical condition of the Questar or its crew nor asked the Questar's crew whether they had any concerns about being towed.

Safety considerations did not preclude removal of the Questar's crew. The Questar was moored in the lee of the KALIMAR, and transferring personnel from the Questar to the PUPPET would have been routine. In fact, little benefit was to be gained from leaving the Questar's crew on their vessel during the tow. The PUPPET lacked an effective means of communicating with the Questar. Additionally, the crew of the Questar, which was at the end of 150 feet of towline, would have been unable to rapidly alert the PUPPET's crew to an emergency on the Questar or to assist the PUPPET's operator in managing the tow by, for example, adjusting the length of the towline (the adjustable end of the PUPPET's towline was tied around the Questar's anchor windlass).

⁶*Boat Crew Seamanship Manual*, Commandant Instruction M16114.5A.

The Safety Board believes that the occupants of a disabled vessel should be removed, if removal can be done safely, before the vessel is towed and that the Coast Guard needs to revise its policies on removal of occupants during towing operations to reduce the risk associated with on-scene response personnel making decisions based on incomplete information.

Risk Assessment Training of Auxiliary Personnel Involved in SAR Operations

The Safety Board is concerned that the PUPPET's operator failed to properly assess the risk to the Questar's operator and passenger in attempting to tow the motorboat. The Safety Board has addressed the issue of risk assessment by Coast Guard SAR personnel in its investigations of the capsizing and sinking of the SEA KING, RITE OF PASSAGE, and BIG ABALONE (see appendix A). Although the Coast Guard is training its active duty SAR personnel in risk assessment, Coast Guard Auxiliary personnel are not receiving this training. The Safety Board believes that the Coast Guard should have applied the lessons learned from the above accidents to its response in the Questar incident. It is critical to the success of any SAR mission that on-scene response personnel determine the nature of the problem, do a risk assessment, and decide on a course of action that minimizes the risk to life and property. The Auxiliary operator of the PUPPET, in responding to the Questar's request for assistance, conducted operations that exposed the Questar's crew to unnecessary risk.

The PUPPET's operator also allowed a guest aboard his vessel to become involved in Auxiliary patrol activities, contrary to Coast Guard Auxiliary operational policy.⁷ While his guest, a Coast Guard Chief Radioman assigned to the 17th District Communication Center, was experienced in communications, he had no practical experience in SAR and towing operations. Even if the operator thought that the

⁷*Coast Guard Auxiliary Operations Policy Manual*, COMDTINST M16798.3C.

Chief Radioman was experienced in small boat SAR, the Safety Board believes that he should not have allowed a guest on his vessel to assume the responsibilities properly assigned to the PUPPET's Auxiliary boat crewmember.

The PUPPET's operator did not ask about the physical condition of the Questar's operator and passenger, in particular, whether anyone had special health problems or medical disabilities. Had he done so, he probably would have determined that the Questar's operator had mild cerebral palsy, was under medication for epileptic seizures, and had a left clubfoot.

In addition, the operator failed to ascertain the condition of the Questar, what the original problem was, and what other problems the crew were experiencing with the vessel while waiting for assistance. The Questar had initially taken on water after unloading fish next to the KAMILAR, and the operator had been unable to start either engine. After the Questar was towed back to the KAMILAR by the IDLE HOURS, the motorboat continued to take waves over the side, requiring the operator and passenger to run the bilge pump and bail out water. The Questar's open fore and aft decks had minimal drainage, and the vessel had a low freeboard in relation to the waves it was encountering. Moreover, the Questar's high wind profile in relation to her shallow draft made her susceptible to wind loading. Had the PUPPET's operator examined the Questar more closely and talked to her crew, he may have determined that the vessel's seaworthiness in the prevailing sea conditions was questionable.

Proper trimming of a vessel to be towed is one of the Coast Guard's principal towing safety precautions taught to SAR personnel. The PUPPET's 150-foot 5/8-inch double-braided nylon towline, connected to the Questar's anchor windlass on the main deck, created a downward force that may have prevented the Questar's bow from riding over waves encountered during the tow. A shorter towline with less catenary may have reduced the downward force on the bow of the Questar during the tow. The PUPPET's operator did not

consider using the Questar's trailer hitch stem padeye, which would have been a better connection point for the towline because of its lower position on the vessel.

Exacerbating the Questar's trim condition was the operator's move into the cabin as the tow was getting under way. Although the PUPPET's operator asked the Questar's crew to remain at the stern of the vessel, he did not monitor the crew's activities once the PUPPET was under way. The Questar operator's relocation into the deckhouse created a forward moment that increased the bow-down trim of the vessel. The PUPPET's operator did not set a towing watch that could have detected this condition. Setting an alert, dedicated towing watch that will maintain a constant watch and frequently account for all occupants on the towed vessel is critical during any towing operation and is recommended under Coast Guard towing doctrine.⁸ The Chief Radioman aboard the PUPPET noticed that one of the Questar's crew had moved away from the vessel's stern, but the significance of the move was not apparent to him. The PUPPET's operator had not instructed the Chief Radioman in any towing safety precautions before getting the tow under way.

When the PUPPET began its tow of the Questar, the PUPPET's operator did not evaluate the motorboat's response to being towed in the prevailing seaway at low speeds. When he looked back at the Questar, after being prompted by his boat crewmember to slow down, the Questar was already being dragged under the first wave. By the time he was able to reverse his engines, the Questar was capsizing. If the PUPPET's operator had observed how the Questar was responding at slow towing speeds, he may have noticed that the Questar was not riding over the waves but into them.

The Safety Board believes that had the operator of the PUPPET evaluated the risk more thoroughly than he did, he would not have

⁸*Coast Guard Boat Crew Seamanship Manual*, COMDINST M16114.5.

towed the Questar with its crew aboard. However, unlike their counterparts in the regular Coast Guard, neither he nor his crewmember had received Human Error Accident Reduction Training (HEART) or similar risk assessment training. The Safety Board believes that had the Auxiliary crew of the PUPPET been trained in SAR risk assessment, this accident may not have happened.

The Safety Board also investigated the issue of crew survivability during this capsizing. Had the PUPPET's operator monitored the actions of the Questar's operator and passenger and restricted their movements to the stern of the vessel, the Questar's operator may not have been trapped in the cabin when the motorboat capsized. In its investigation of the capsizing and sinking of the U.S. fishing vessel SEA KING, the Safety Board determined that the people who had remained on board in the cabin during the tow could not safely exit when the vessel capsized. Using lessons learned from the SEA KING and Questar accidents, the Coast Guard Auxiliary needs to revise its towing policies to ensure that people who remain on board a towed vessel are situated so as to ensure their safe exit in the event of an emergency.

Toxicological Testing of Coast Guard Auxiliary Personnel

During its investigation, the Safety Board found that Coast Guard SAR personnel involved in the Questar's capsizing, including the PUPPET's Coast Guard Auxiliary crew, were not toxicologically tested. The Coast Guard

designated this accident a class A mishap and invoked the provisions of its *Safety and Environmental Health Manual*, COMDTINST M5100.47, by convening a vessel mishap analysis board. The medical officer assigned to that board is responsible for ensuring that appropriate examinations and laboratory procedures, including complete physical examinations and toxicological tests, are conducted to establish which human factors were relevant to the accident. While toxicological testing after a class A mishap is routine for active duty personnel, the Coast Guard does not have a policy to require toxicological testing of Auxiliary personnel involved in vessel mishaps, even if they are operating under Coast Guard orders. The Coast Guard justifies this position on the grounds that Coast Guard Auxiliary personnel are volunteers and the "Good Samaritan Law" should apply.⁹

The Secretary of Transportation has published a directive (DOT Order 3910.1C) prescribing the department's policy and procedures for implementing Executive Order 12564, Drug-Free Federal Workplace. The directive calls for testing each employee, if his or her work performance may have contributed to an accident, for the presence of drugs following an accident involving one or more deaths. This policy applies to the Coast Guard. The Safety Board believes that members of the Coast Guard Auxiliary, while operating on Coast Guard orders, also have significant responsibilities affecting public safety and should meet the same standards as full-time Coast Guard personnel.

⁹Telephone conversation with COMMANDANT (G-HSE-4) on April 28, 1996.

PROBABLE CAUSE

The National Transportation Safety Board determines that the probable cause of the Questar's capsizing was the flooding of the vessel due to use of improper towing procedures by the Coast Guard Auxiliary operator of the PUPPET. Contributing to the capsizing was the

failure of the PUPPET's operator to properly assess risk before deciding to tow the vessel in hazardous sea conditions. Contributing to the loss of life was the failure of the PUPPET's operator to remove the Questar's operator and passenger before towing the vessel.

RECOMMENDATIONS

As a result of its investigation, the National Transportation Safety Board makes the following recommendations to the U.S. Coast Guard:

Improve Station Juneau's radio reception capability commensurate with its tactical responsibilities in the mission area. (M-96-11)

Develop written policies that set limits, based on clearly defined weather and sea conditions, on the use of Coast Guard Auxiliary resources. (M-96-12)

Revise Coast Guard search and rescue policy to require or recommend removal of occupants from towed vessels before beginning the tow if it is safe to do so. (M-96-13)

Provide risk assessment training to all Coast Guard Auxiliary personnel involved in search and rescue missions. (M-96-14)

Revise Coast Guard Auxiliary policies on units rendering assistance to vessels

to ensure that all people who remain on board a towed vessel are situated so as to ensure their safe exit in the event of an emergency. (M-96-15)

Revise Coast Guard regulations to require mandatory postaccident toxicological testing of Coast Guard Auxiliary personnel involved in marine accidents while operating under Coast Guard orders. (M-96-16)

Incorporate the lessons learned from this accident into a case study training exercise for Coast Guard search and rescue units, including Coast Guard Reserve and Auxiliary commands. (M-96-17)

Publicize the circumstances of this accident to all Coast Guard units responsible for search and rescue. (M-96-18)

Disseminate a copy of this report to all Coast Guard Auxiliary personnel involved in search and rescue missions. (M-96-19)

BY THE NATIONAL TRANSPORTATION SAFETY BOARD

JAMES E. HALL
Chairman

ROBERT T. FRANCIS II
Vice Chairman

JOHN A. HAMMERSCHMIDT
Member

JOHN J. GOGLIA
Member

GEORGE W. BLACK, JR.
Member

November 26, 1996

APPENDIX A

**SAFETY BOARD'S APRIL 13, 1994, RECOMMENDATION LETTER
TO COMMANDANT, U.S. COAST GUARD
CONCERNING RITE OF PASSAGE, BIG ABALONE, DUKE LUEDTKE**



National Transportation Safety Board

Washington, D. C. 20594

Safety Recommendation

Date: April 13, 1994

In Reply Refer To: M-94-7 through -9

Admiral J. William Kime
Commandant
U.S. Coast Guard
Washington, DC. 20593-0001

The National Transportation Safety Board has investigated three rescue efforts conducted by the U.S. Coast Guard during August 1993. The vessels in distress were two pleasure craft and one tugboat. Four persons died, three civilians and one Coast Guardsman. As a result of investigating these accidents, the National Transportation Safety Board determined that some of the Coast Guard personnel involved in each search and rescue (SAR) operation did not properly assess the risks. The Safety Board makes the following findings and recommendations:

The first accident involved a disabled 27-foot sailing vessel near Charleston, South Carolina. At 0058,¹ on August 4, 1993, the operator of the vessel, the RITE OF PASSAGE, used VHF-FM channel 16 to call Coast Guard Group Charleston, South Carolina. He said that he was about a mile east of Breaches Inlet, near Isle of Palms, South Carolina, and that he needed help because his vessel was disabled by engine problems. The Coast Guard communications watchstander questioned the operator and learned that he was the only person on the vessel and that the vessel was not aground but anchored. Believing that the operator was in no immediate danger, the watchstander classified the case as a "non-distress"² one and issued a Marine Assistance Request Broadcast (MARB).³ A local, privately owned commercial towing

¹ Eastern daylight time, based on a 24-hour clock.

² A SAR case is classified as a non-distress one if it does not constitute a threat to life or property.

³ A message broadcast on VHF/FM channel 16 asking anyone who is interested to help a vessel. Such a message is broadcast only about a vessel in a "non-distress" situation. Responders are supposed to reply on VHF/FM channel 22A.

company responded and offered to help. The watchstander told the operator of the RITE OF PASSAGE that the towing company was coming.⁴

At 0100, the Isle of Palms police department telephoned the Coast Guard to report spotting a sailing vessel in trouble. The watchstander immediately dispatched the CG 41428, a 41 -foot utility boat (UTB). Neither the police nor the watchstander realized that the distressed vessel was the RITE OF PASSAGE.

About 0120, a representative of the towing company informed the watchstander that his company did not have sufficient personnel available to assist the RITE OF PASSAGE. At 0125, the watchstander told the operator of the RITE OF PASSAGE that the towing company could not help him, but that the UTB was proceeding to assist a second vessel in distress and would come to his assistance as soon as it was available. The operator replied that the RITE OF PASSAGE was dragging its anchor, had drifted near the beach, and was encountering heavy surf.

The towing company notified the watchstander that it was now able to provide assistance to the RITE OF PASSAGE. The watchstander granted permission for the company to respond. Within minutes, the company vessel was underway. In the meantime, the UTB continued toward what was assumed to be the second vessel in distress but was actually the RITE OF PASSAGE.

As the UTB approached the vessel, the coxswain observed the vessel's operator moving around the deck. The UTB's crew passed a towline to the operator, who secured it to his vessel. The operator then attempted to release his anchor line, apparently in an attempt to facilitate the towing operation. The coxswain, using a loudhailer, instructed him to go to the stern and put on a personal flotation device (PFD). Whether the operator heard the coxswain is unknown.

Shortly thereafter, the UTB took the vessel in tow. The operator was last seen moving toward his vessel's stern, apparently in compliance with the coxswain's instructions. The operator was not wearing a PFD, and the vessel was pitching and rolling violently in the surf.

Meanwhile, about 0240, the boat sent by the towing company arrived on scene. Its operator tried to establish radio contact with the operator of the RITE OF PASSAGE. When his attempts failed, he maneuvered the company vessel alongside the RITE OF PASSAGE and placed a crewman aboard.

Once on board, the crewman discovered that the operator of the RITE OF PASSAGE was no longer aboard. The towing company personnel reported to the Coast Guard that no one was aboard the RITE OF PASSAGE. The coxswain of the UTB released the towline and began searching for the missing operator.

⁴For more detailed information, read Marine Accident Brief No. DCA-93-MM-023 (attached).

At 0550, a local rescue squad recovered the body of the operator from the surf and transported him to a nearby hospital, where he was pronounced dead. The official cause of death was drowning.

The Safety Board believes that both the watchstander and the coxswain made mistakes in handling the case. The watchstander should have classified the incident as a distress case. The coxswain should, when he arrived on scene, have evaluated the situation more thoroughly and accurately than he did.

According to Group Charleston policy, when prosecuting the SAR, the communications watchstander should have used a check-off list with criteria for deciding whether the call for assistance constituted a distress or a non-distress situation. The watchstander should have determined whether anyone on board the vessel had special problems or problems related to age or health and whether the vessel was at anchor or had a drift rate.

The watchstander did not ask the operator of the RITE OF PASSAGE all of the questions on the check-off list. Had he asked the questions, he likely would have determined that the operator was 67 years old, had a heart condition that required medication, and had had a heart attack within the last year. He would then have had a sufficient basis for classifying the case as a distress one and, consequently, for immediately dispatching a SAR vessel.

When the operator of the RITE OF PASSAGE told the watchstander that the vessel was dragging its anchor, was near the beach, and was encountering heavy surf, the watchstander had a second chance to decide the situation was a distress case. He should have immediately changed the status of the case and dispatched a SAR unit. Instead, he gave the towing company permission to handle the situation.

Under Coast Guard policy, as stated in the *National Search and Rescue Manual* (the SAR manual), the safety of people is always more important than the safety of property. Accordingly, the Coast Guard specifically requires its personnel⁵ to assess a situation before making any attempt to take a distressed vessel in tow. By that assessment, personnel should establish and maintain communications with the people on the distressed vessel, ensure that they are wearing PFDs, and evaluate the risks that towing the vessel might pose to either Coast Guard personnel or civilians.

Nevertheless, as soon as the UTB arrived on scene, the coxswain tried to take the RITE OF PASSAGE in tow despite the fact that the vessel's anchor was deployed, the operator was not wearing a PFD, and the operator was moving about on a deck that was pitching and rolling wildly. The coxswain did not pause to determine whether the operator or the vessel was in such immediate danger that he should be removed before any attempt was made to tow the vessel.

⁵All personnel involved in a SAR case.

The second accident involved the sinking of a 25-foot pleasure craft in Coos Bay, Oregon. About 1500,⁶ on Friday, August 20, 1993, the pleasure craft BIG ABALONE, with five persons on board, departed the Charleston Marina, Coos Bay, Oregon, for a day of recreational crabbing in the bay. Three of the people on board were older than 65. After a couple of hours of crabbing, the BIG ABALONE began having engine trouble and became disabled and adrift.⁷

Meanwhile, the charter fishing vessel BETTY KAY was returning to Charleston Harbor. The operator saw someone from the BIG ABALONE waving for attention. When he brought the BETTY KAY alongside the BIG ABALONE, he was told by the boat's operator of the engine problem and was asked to call the Coast Guard. The operator called Coast Guard Station Coos Bay via VHF-FM channel 16 (at 1719), reporting that the BIG ABALONE was disabled in Coos Bay with five persons on board.

At 1721, a four-man crew, consisting of a coxswain, an engineer, and two crewmembers, got underway aboard the CG 44373, a 44-foot motor life boat (MLB). Shortly thereafter, the operator of the BETTY KAY advised the Coast Guard that the BIG ABALONE was slowly taking on water.

The coxswain of the MLB decided en route that the pleasure craft needed to be de-watered and towed. He told the engineer to prepare to board the pleasure craft with a P-5 pump.

The coxswain later stated that because the pleasure craft had not been reported as being in imminent danger of sinking, he had assumed that the flooding was probably minor. Consequently, he had decided before he arrived at the accident scene that there was no need to expose the pleasure boat's passengers to the dangers involved in transferring them to the MLB.

The MLB arrived on scene at 1730. Winds were from the south at 10 knots, seas were 3 to 5 feet and choppy, and visibility on the bay was about 100 to 150 yards. The temperature of the water was 57° F.

At 1732, the engineer boarded the BIG ABALONE and reported that there were about 6 inches of water in the engine casing bilge. He could not determine the source of the leak.

The coxswain noticed the sea conditions were deteriorating rapidly and began maneuvering the MLB so that a towline could be attached to the BIG ABALONE. As the MLB approached the starboard bow of the vessel, an 8- to 10-foot swell broke over the starboard quarter of the BIG ABALONE. Almost immediately, another 8- to 10-foot swell broke over the stern, swamping the pleasure craft. Two of the passengers were trapped on the sunken vessel and could not be rescued. The other three persons on the boat and the MLB engineer were able

⁶Pacific daylight time, based on a 24-hour clock.

⁷For more detailed information, read Marine Accident Brief No. DCA-93-MM-029 (attached).

to jump clear of the vessel and were rescued by the MLB. They were transferred to a 20-foot rigid-hull inflatable boat from Station Coos Bay and transported ashore.

While it is a sound practice for rescuers to make plans before they arrive on scene, the Safety Board believes that the coxswain should have reevaluated the situation when he arrived. The actual sea conditions were much more severe at the bar than indicated in earlier weather reports. In addition, the BIG ABALONE had drifted, and continued to drift, dangerously close to the bar.

Had the coxswain reevaluated the situation, he might have realized that it was much more serious than he had thought and that transferring the engineer would do nothing more than increase the number of people who were about to be endangered by the sinking of the BIG ABALONE and, ultimately, the number of people who would have to be rescued. If after his reevaluation, he still believed that it was too dangerous to remove the passengers from the BIG ABALONE, he could have attempted to tow the vessel into quieter waters. The engineer could have then boarded the BIG ABALONE while the UTB continued towing the vessel back to Coos Bay.

The third accident involved the sinking of a harbor tug on Lake Erie, Ohio. The DUKE LUEDTKE was a typical Great Lakes Harbor tug: 68.7 feet long, 17 feet wide, and 11 feet deep. Three persons were on board, the captain and two deckhands. After getting underway at 1930⁸ on September 20, 1993, en route to Ashtabula, Ohio, the captain had checked the engineroom every hour to ensure that everything was operating properly. At 2300 he noted that there was 3 feet of water in the engineroom, whereas he had observed no water there during his previous check at 2200. He could not determine the source of the flooding.

The wind was coming out of the west at 6 knots, and the seas were 2 to 4 feet. The air temperature was 63° F, the water temperature was 70° F, and visibility was 4 miles.

At 2337 the operator of the tug called Coast Guard Station Cleveland Harbor, Ohio, on VHF/FM channel 16. He said he needed help because the water in the engineroom was about 3 feet deep. He gave his position as approximately 13 miles north of Avon Point on Lake Erie. About 8 minutes later, about 2345, he told the watchstander that the level had increased to about 5 feet.⁹

At 2340, Coast Guard Station Cleveland Harbor dispatched a 41-foot UTB, CG 41487, with a coxswain, an engineer, and three crewmembers. Before the coxswain got underway, the watchstander briefed him, telling him the vessel's identity, type, location, and problem.

The UTB arrived on scene at 0323, September 21, 1993, and secured the UTB to the forward port side of the tug. Two of the UTB crewmembers immediately boarded the tug and entered a compartment above the engineroom through a watertight door on the port side, slightly

⁸Eastern daylight time, based on the 24-hour clock.

⁹For more detailed information, read Marine Accident Brief No. DCA-93-MM-030 (attached).

aft of amidships, closing the door behind them. They intended to determine the source of the flooding, stop the flooding, if possible, with repairs, and use a portable pump to evacuate the water.

About 90 seconds after the UTB arrived on scene, the tug suddenly rolled to port and sank, stern first. The two UTB crewmembers were still inside the area above the engine room. One of them managed to make his way to the wheelhouse through an interior forward bulkhead door leading through the galley and up to the wheelhouse. He then escaped through a window and swam to the surface, where he was rescued by the UTB. The other crewmember was trapped inside the tug. Divers from a civilian salvage company recovered his body the next day. All three crewmembers of the DUKE LUEDTKE survived.

The Safety Board believes that the Coast Guard's response to this incident demonstrated a clear lack of risk assessment, particularly by the watchstander and the coxswain. When the watchstander received the call for assistance, he was supposed to fill in a Search and Rescue Incident Summary form.¹⁰ He did not fill in the part of the form labeled "Initial Severity." He said that he had not sensed any urgency in the voice of the tug captain and that he therefore had not considered the situation to be life threatening. The Safety Board believes that the watchstander should not have based his assessment solely on his perception of the stress in the captain's voice. Because the watchstander misjudged the severity of the situation, he briefed the coxswain inaccurately, telling him that the tug was underway and taking on water, not that it was in danger of sinking.

The coxswain stated that he believed that the case would be routine and could be resolved by putting two of his crewmembers on board to assess the situation, stop the flooding, if possible, and pump out the flooded compartment with a portable pump. He said that when he arrived on scene, the tug was riding smoothly, rolling slowly, and not listing. Therefore, he did not think it was likely to sink.

However, with over 5 feet of water in the engine room, the tug's stability had reached a critical point: the tug would ride smoothly and roll slowly until it was about to capsize and sink. The Safety Board believes that a properly trained coxswain would have known that the slow rolling of the tug was an indication that it was very unstable and ready to capsize. A properly trained coxswain would also have known that a vessel does not necessarily list before it capsizes or sinks.

According to the surviving Coast Guardsman, when he and the other crewmember boarded the tug, he noticed there was about a foot of water on the after main deck. He said that when they entered the engine room, the other crewmember closed the door so that the water on deck would not enter the engine room. The Safety Board believes that the two crewmembers did not understand the severity of the flooding that had taken place before and during the time they

¹⁰A form used to record important data and information about the vessel in distress. The form is vital for ensuring that SAR cases are properly assessed and prosecuted.

were on the vessel. The tug had already sunk to a point where the water level was above the freeing ports¹¹ aft, allowing water to accumulate on the main deck.

The Officer-in-Charge of the Station stated that over 90 percent of all SAR cases handled by his unit involve assisting recreational boats 19 to 25 feet in length. (The DUKE LUEDTKE was about 69 feet long.) Therefore the Station does not train its personnel in on-scene evaluation of a commercial vessel's condition or on the differences between assisting commercial vessels and recreational boats.

The Safety Board believes that the coxswain in this case, lacking such training, was not able to recognize the risks involved in placing his crewmembers aboard the DUKE LUEDTKE or in allowing people to enter a closed space. Nor did he recognize the need to seek advice about the dangers of a flooded engine room or the need to consult with licensed crew before taking action. Had he done a proper risk assessment, he would have known that everyone should have been removed from the tug immediately and that no one should have been allowed to go inside the deckhouse.

The Safety Board also addressed the issue of risk assessment in its investigation of the January 11, 1991, capsizing and sinking of the fishing vessel SEA KING.¹² As a result of that accident, the Board issued Safety Recommendation M-92-54 on November 17, 1992, asking that the Coast Guard:

Incorporate into the training of search and rescue (SAR) personnel procedures to ensure the gathering and dissemination of pertinent information by all appropriate SAR personnel to facilitate a thorough assessment of the potential risks to persons involved in a SAR mission.

In its June 21, 1993, response the Coast Guard said that it concurred with the intent of the recommendation and planned to revive its on-scene commander's course, which had been discontinued in 1988. The Board consequently classified the safety recommendation "Open--Acceptable Response,"¹² pending implementation of the course. In a November 15, 1993, letter, the Safety Board asked the Coast Guard for an update on the status of this project and is awaiting the reply.

The Safety Board is concerned that the Coast Guard's reviving the course will not satisfy the need for risk assessment training at the Group and Station levels. As illustrated in the Board's investigations of the three accidents described in this letter, the communications watchstander in two of the three cases and the boat coxswain in all three cases failed to adequately assess the risks to the lives of the people on the distressed vessels.

¹¹Openings in the side plating of a vessel. The openings are close to the main deck so that if there is any water on deck, it can drain overboard.

¹²Marine Accident Report--*Capsizing and Sinking of the U. S. fishing Vessel SEA KING near Astoria, Oregon, January 11, 1991* (NTSB/MAR-92/05).

The SAR manual explains how SAR missions should be conducted. Chapter 4, “Awareness and initial Action,” states:

. . . the information collected and the initial action taken are critical to SAR success. Information must regathered and evaluated to determine the nature of the distress... and what action should be taken [section 400]

The risks inherent in any SAR response must be carefully weighed against the mission’s chances for success, that is, the saving of life or, to a lesser extent, property [section 446]

The Safety Board believes that had the watchstanders and the coxswains involved in these accidents been more aware of the importance of following the guidance in the above sections of the SAR manual and had they done a better job of assessing the risks that the people on the distressed vessels were facing, they would have decided to remove them from the vessels as soon as possible.

Because of its high freeboard, the MLB involved in the BIG ABALONE accident had great difficulty in retrieving one of the survivors. The Safety Board found the same problem in a previous accident, the December 2, 1989, sinking of the small passenger vessel BRONX QUEEN¹³ in Lower New York Bay, New York. As a result of that accident, the Safety Board issued Safety Recommendation M-90- 111, asking that the Coast Guard:

Develop new methods and or equipment for use aboard the 44-foot motor life boat to expedite the retrieval of survivors from the water during search and rescue operations.

In its March 22, 1991, response, the Coast Guard agreed with the Safety Board on this matter and said that it would direct the National Motor Lifeboat School and the UTB System Center to investigate alternative methods of recovering people from the water. The Safety Board had asked that the Coast Guard not only investigate, but also develop alternative methods. Pending the Coast Guard’s further reply to this recommendation, it was classified “Open--Acceptable Response. ”

On October 10, 1993, the Coast Guard stated that it had bought and tested four different inflatable “rescue ramp” prototypes and that after it made some minor modifications, the testing would continue. The Coast Guard said that once the design was acceptable, it would seek funds for outfitting selected Coast Guard units with the ramps. The Board continues to hold this safety recommendation in an “Open--Acceptable Response” status.

¹³For more information, see page 57 of the Safety Board’s Marine Accident Brief NTSB/MAB-92/01, a compilation of accident briefs.

In view of the BIG ABALONE accident, the Safety Board reiterates Safety Recommendation M-90-1 11 and asks that the Coast Guard expedite its testing of the rescue ramps and supply them to the Coast Guard's fleet of 44-foot MLBs as soon as practicable. If the Coast Guard determines that the ramps are unsuitable, the Safety Board strongly urges the Coast Guard to provide a suitable alternative.

And lastly, as a consequence of the Board's investigation of the three accidents described in this letter, the Safety Board recommends that the Coast Guard:

Provide risk assessment training to all Coast Guard personnel directly involved in search and rescue missions. (Class II, Priority Action) (M-94-7)

Review search and rescue procedures to ensure that all search and rescue personnel are trained to recognize the differences between assisting commercial vessels and recreational boats. (Class II, Priority Action) (M-94-8)

Publicize the circumstances of these accidents to all Coast Guard search and rescue units. (Class II, Priority Action) (M-94-9)

Chairman VOGT, Vice Chairman COUGHLIN, and Members LAUBER, HAMMERSCHMIDT, and HALL concurred in these recommendations:

By: Carl W. Vogt
Chairman

**NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C. 20594**

**Marine Accident Brief No. DCA-93-MM-023
Adopted March 25, 1994**

Vessel: 27-Foot-Long Sailing Vessel RITE OF PASSAGE, State
Registration No. NJ629CP
Accident Type: Fall Overboard
Location: Isle of Palms near Charleston, South Carolina
Latitude 34°59.75' N, Longitude 92°45.75' W
Date: August 4, 1993
Time: Approximately 0200, Local
Owner: James Jackson
Whiting, New Jersey
Property Damage: None
Injuries: 0
Deaths: 1
Complement: 1

Description of the Accident

At 0058¹ on August 4, 1993, Coast Guard Group Charleston received a call on VHF-FM channel 16 from the operator of the sailing vessel RITE OF PASSAGE. The operator stated that the vessel was disabled with engine problems about 1 mile east of Breaches Inlet near Isle of Palms, South Carolina, and that he needed assistance. He told the Coast Guard communications watchstander that he was the only person on the vessel, that the vessel was not aground but anchored, and that the vessel was a 27-foot white-hulled sloop. Believing that the operator was in no immediate danger, the watchstander classified the incident as a “non-distress” situation and issued a Marine Assistance Request Broadcast (MARB).² A local towing company responded

¹All times are Eastern daylight time based on a 24-hour clock.

²A radio broadcast on VHF/FM channel 16 to anyone interested in providing assistance to a vessel in a “non-distress” situation, e.g., out of fuel with no existing threat to life or property. Responders are asked by the Coast Guard to call back on VHF/FM channel 22A.

to the MARB and advised the Coast Guard that it would help the RITE OF PASSAGE. The Coast Guard then passed this information to the operator of the RITE OF PASSAGE.

The communications watchstander, contrary to Group Charleston policy, did not ask the operator all of the questions on the search and rescue (SAR) check-off list. Had he asked the questions he would have learned that the operator was a 67-year-old man with a heart condition that required medication and that he had had a heart attack within the last year. Such information would have allowed the watchstander to classify the case as a distress one and consequently dispatch a SAR unit.

At 0100, the Coast Guard received a telephone call from the Isle of Palms Police Department reporting that a sailing vessel (identity unknown) was aground and listing badly about 100 yards off the beach near the north end of Isle of Palms. About 0106, the Coast Guard dispatched the C 41428, a 41-foot utility boat (UTB), to respond to what was apparently a second vessel in distress.³

About 0120, a representative of the towing company told the watchstander that his company did not have sufficient personnel available to assist the RITE OF PASSAGE. At 0125, the watchstander told the operator of the RITE OF PASSAGE that the towing company was unable to assist him but that a UTB was proceeding to help a second vessel in distress and would come to his assistance as soon as it was available. It was at this time that the operator of the RITE OF PASSAGE reported that his vessel was dragging its anchor, was located near the beach, and was encountering heavy surf. The wind on scene was about 25 knots, and the seas were between 3 and 4 feet in height. Shortly thereafter, the towing company notified the watchstander that it was now able to help the RITE OF PASSAGE. The watchstander granted permission for the company to respond. Within minutes, a privately-owned commercial vessel got underway to render assistance to the RITE OF PASSAGE.

About 0155, the coxswain of the UTB reported that he had spotted a white-hulled sailing vessel in the surf off Isle of Palms and that he was maneuvering the UTB inshore, toward the vessel. He made several attempts to contact the operator of the RITE OF PASSAGE vessel on VHF-FM channels 16 and 22A but was unsuccessful.

As the UTB approached the stricken vessel, the coxswain observed the vessel's operator moving around the deck. The crew of the UTB passed a towline to the operator, who secured it to his vessel. He then attempted to release his anchor line, apparently in an attempt to facilitate the towing operation. The coxswain, using a loudhailer, instructed him to proceed to the stern of the RITE OF PASSAGE and to don a personal flotation device (PFD). It could not be determined whether the operator heard the instructions.

³In fact, the vessel that the Isle of Palms Police Department had sighted was the RITE OF PASSAGE, but this was not known at the time.

Shortly thereafter, the UTB took the vessel in tow. The operator was last seen moving toward his vessel's stern, apparently in compliance with the coxswain's instructions. He was not wearing a PFD, and the RITE OF PASSAGE was pitching and rolling violently in the surf at this time.

Meanwhile, the boat dispatched by the towing company arrived on scene. Its operator attempted to establish radio contact with the operator of the RITE OF PASSAGE. About 0245, when these attempts proved unsuccessful, the operator of the towing company vessel maneuvered alongside the RITE OF PASSAGE and placed a crewman aboard.

When the crewman got on board, he discovered that the vessel's operator was no longer aboard. The towing company personnel reported to the Coast Guard that no one was aboard the RITE OF PASSAGE. The coxswain of the UTB released the towline and began searching for the missing operator.

At **0550**, a local rescue squad recovered the operator's body from the surf and transported it to a nearby hospital, where the operator was pronounced dead. He was not wearing a PFD. The official cause of death was determined to be drowning.

Probable Cause

The National Transportation Safety Board was unable to determine the probable cause for the operator of the RITE OF PASSAGE falling overboard. Contributing to the loss of life was the failure of the Coast Guard communications watchstander and coxswain to properly assess the risk to the operator of the RITE OF PASSAGE and the failure of the coxswain of the CG 41428 to remove the operator before attempting to tow the vessel.

**NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C. 20594**

**Marine Accident Brief No. DCA-93-MM-029
Adopted March 25, 1994**

Vessel: BIG ABALONE, a25-Foot-Long Fiberglass Pleasure Craft,
Registration No. 0R176KD
Accident Type: Sinking
Location: Coos Bay, Oregon(Latitude 43°21.16'N, Longitude 124°
21.36'W)
Date: August 20, 1993
Time: Approximately 1734, Local
Owner: Mr. Clair Irwin, Myrtle Creek, Oregon
Property Damage: \$10,000
Injuries: 2 Fatalities
Complement: 5

Description of the Accident

About 1500,¹ on Friday, August 20, 1993, the pleasure craft BIG ABALONE departed the Charleston Marina, Coos Bay, for a day's recreational crabbing in the bay. The vessel had five passengers: the 67-year-old owner/operator of the pleasure craft, his 68-year-old wife, another couple ages 66 and 58, and a 46-year-old woman. The owner had bought the boat in April 1993 and put it in the water in June. He had owned and operated other smaller boats but had never taken courses from any organization in either boat or marine-radio operation. This outing was the fourth or fifth time he had taken this boat away from the pier.

The group baited and set crab traps within the protective jetty entrance at Coos Bay, between buoys G5 and G5A. After the traps were checked for catch, the BIG ABALONE began having engine trouble. Because of the engine trouble, the BIG ABALONE was disabled and adrift in Coos Bay.

Meanwhile, the charter fishing vessel BETTY KAY, which was returning to Charleston Harbor, was proceeding inbound approaching buoy G5A. Its operator saw someone waving for attention from the drifting pleasure craft. When he brought the BETTY KAY alongside of the BIG ABALONE, he was told by that boat's operator of the engine problem. Even though the BIG ABALONE's operator stated that his CB and VHF radios were on and tuned to channel 11 and channel 16, he asked the operator of the BETTY KAY to call the Coast Guard and tell them

¹All times in this report are Pacific daylight time based on a 24-hour clock.

of his problem.

At 1719, the operator of the BETTY KAY contacted the communications center at USCG Station Coos Bay, via VHF-FM radio channel 16. He reported that the BIG ABALONE was disabled and adrift in Coos Bay, between buoys G5 and G5A, with five persons on board. The communications watchstander told the operator to instruct all persons on board the BIG ABALONE to don personal flotation devices (PFDs). The BETTY KAY's operator passed on the Coast Guard's instructions, and all persons on board the BIG ABALONE complied.

The BETTY KAY remained within shouting distance of the BIG ABALONE while awaiting the arrival of the Coast Guard. According to the BETTY KAY's operator, after a short while, he noticed that the pleasure craft appeared a little low in the water. He asked the BIG ABALONE's operator whether his vessel was taking on water. The operator of the BIG ABALONE said it was not. The BETTY KAY operator asked a second time, and after checking his boat, the BIG ABALONE operator confirmed that his vessel was slowly taking on water. The BETTY KAY relayed this information to the Coast Guard. He also informed the Coast Guard that all persons on the disabled boat were now wearing PFDs. The Coast Guard instructed the BETTY KAY's operator to switch his VHF radio to channel 22A for all further communications with the Coast Guard.

At 1719, when the BETTY KAY's initial call was received at Station Coos Bay, the watchstander sounded the alarm to activate the duty boat crew. At 1721, a four-man crew, consisting of a coxswain, who was in command, an engineer, and two crewmen, got underway aboard the CG 44373, a 44-foot motor life boat (MLB). Among the MLB's standard equipment were a VHF-FM radio, radar, Loran, towing lines, and a P-5 gas-engine-driven portable pump.

According to the morning (0855) weather report, conditions at Coos Bay Bar were as follows: southerly winds at 10 knots, swells of 3 to 5 feet occasionally running to 6 feet, choppy, with a 2-knot ebbing current. The morning weather report also contained a rough bar warning because of "extremely hazardous bar conditions," which restricted recreational boats less than 20 feet long from crossing the bar at the entrance to Coos Bay. The rough bar warning and restriction were issued by Station Coos Bay and broadcast on the radio regularly by the Coast Guard.

The coxswain stated that, based on the morning weather report and rough bar warning, the position of the BIG ABALONE (inside the jetty), and radio-transmitted information concerning the pleasure craft (disabled, adrift, and taking on water), he decided while he was en route to de-water and tow the pleasure craft to shore. The coxswain further stated that he was aware the pleasure craft was taking on water, but it was his understanding that the boat was not in danger of sinking. To this end, the coxswain told the MLB engineer to prepare to board the pleasure craft with a P-5 de-watering pump.

When the coxswain saw the pleasure craft, he released the BETTY KAY to return to port. As the coxswain brought the MLB close to the BIG ABALONE, he noticed two women in the forward portion of the pleasure craft, outside the small cabin, but protected by a canvas cover. They were sitting on a bench facing forward at the boat's control console. The two

women waved calmly to the crew as the MLB approached the BIG ABALONE. The two male occupants were standing in the stern of the pleasure craft, along with the 46-year-old female. According to the coxswain, the people in the pleasure craft showed no signs of panic or fear. The coxswain stated that because the pleasure craft did not appear to be in imminent danger of sinking, he believed that the reported flooding was probably minor.

He later stated that the conditions on the bar were more severe than the early weather report had indicated. The ebb tide appeared to be about 4 to 5 knots with seas of about 7 to 8 feet. He therefore saw no need to expose the pleasure boat's passengers to possible injury by attempting to transfer them to the MLB in the rough sea.

He observed that the BIG ABALONE was setting seaward toward the bar with the ebbing tidal current. And he believed that the transfer of his engineer and a P-5 pump to the pleasure craft would not endanger the vessel or the people on board. The coxswain maneuvered along the BIG ABALONE's port side, and about 1732, the engineer boarded the pleasure craft. The P-5 pump was then transferred to him. Once on board, the engineer reported to the coxswain about 6 inches of water in the engine casing bilge. He also reported that the water around the engine was calm and flat and that he could not determine the source of the leak.

After transferring the engineer, the coxswain maneuvered the MLB aft along the port side of the pleasure craft, turned around the stern, and proceeded up along the starboard side to position the MLB ahead of the BIG ABALONE to facilitate towing. About 1734, as the MLB neared the starboard bow of the pleasure craft, an 8- to 10-foot swell broke over the stern of the BIG ABALONE. The coxswain yelled, "Get all the people out on deck." But his warning was too late. By then another 8- to 10-foot swell had broken over the stern again, swamping the pleasure craft.

Suddenly, the open stern of the vessel was under water, and the forward half of the pleasure craft pointed up out of the sea at about a 45-degree angle. The coxswain clearly saw the two women sitting on the front bench seat at the boat's control console as the pleasure craft slipped beneath the sea stern first. Only about 2 minutes had passed since the engineer had boarded the pleasure craft. The coxswain yelled to his remaining crew to get a count of all people in the water.

Following the swamping of the BIG ABALONE, the coxswain radioed Station Coos Bay and reported that the pleasure craft had capsized and there were four people visible in the water, including his engineer. All of the BIG ABALONE's occupants still had on their PFDs. By this time, the bow of the pleasure craft was protruding only about 1.5 feet above the surface of the sea.

An MLB crewmember requested permission to enter the water and assist in retrieving the people. The coxswain immediately granted permission, and the crewmember jumped into

the 57° F sea water.² The crewmember (rescue swimmer) assisted the survivor nearest the MLB, the 46-year-old woman, who weighed about 270 pounds. Another crewmember threw the rescue toss line to the rescue swimmer, and together they maneuvered the woman toward the side of the MLB. After numerous attempts, the two MLB crewmen on board the MLB, with the help of the two crewmembers who were in the water, succeeded in getting the woman on board the MLB.

The coxswain threw a life ring to the engineer, who held onto the BIG ABALONE's operator. The boat operator was holding onto the P-5 pump, which was still afloat in its buoyant drum-like container. The engineer and the operator were pulled to the side of the MLB with the life ring retrieving line. The operator held on until the 46-year-old woman was removed from the water. Then the operator was lifted on board the MLB.

The last survivor, a male, was observed clinging to the bow of the pleasure craft. The nearly submerged pleasure craft was drifting toward the MLB, and the survivor was between the two vessels and in danger of being injured between them. The MLB engineer swam to him and pulled him free of the pleasure craft bow. A crewmember reached over the side of the MLB, while the coxswain held onto his belt, and together all four crewmen pulled and pushed the survivor onto the MLB. Then the coxswain and a crewmember lifted their shipmate (rescue swimmer) into the MLB. The engineer pulled himself on board the MLB.

According to the MLB crew, the three survivors appeared to be in various stages of shock. One of the elderly men was dazed and sobbing and very depressed. Another survivor appeared to have a bluish or purplish complexion and was complaining of chest pains, and the third survivor had bruised or broken ribs. At that time the MLB was rolling through an 80-degree arc (40 degrees to each side) when a 20-foot rigid hull inflatable boat (RHIB) from Station Coos Bay came alongside. The coxswain decided to transfer the survivors to the RHIB, while the MLB continued the search for other possible survivors. The survivors were transported ashore to a waiting ambulance. They were taken to local hospitals, where they were treated and released.

During the transfer of the survivors, the MLB crew lost sight of the bow of the BIG ABALONE. Following the transfer, the MLB coxswain returned to the accident site and began a search from that location, accounting for the ebb tide. About 25 minutes later, he was joined by the Station's 30-foot patrol boat. Shortly after that, a helicopter from USCG Air Station North Bend and the 52-foot MLB INTREPID joined in the search. An air and sea search for the two missing women continued for a day and a half with negative results. The bodies of the two victims were never found.

Probable Cause

²The estimated survival time in 57° F water is 1 to 6 hours. However, a person may become exhausted or unconscious within 1 to 2 hours as a result of hypothermia and may drown while afloat in a PFD. A person's age is also a factor in his/her ability to survive.

The National Transportation Safety Board determines that the probable cause of the sinking of the BIG ABALONE was the swamping of the drifting and disabled pleasure craft because of the heavy seas at Coos Bay Bar. Contributing to the loss of life was the failure of the coxswain of the CG 44373 to remove the passengers before attempting to tow the vessel into safer waters.

NATIONAL TRANSPORTATION SAFETY BOARD

WASHINGTON, D.C. 20594

Marine Accident Brief No. DCA-93-MM-030

Adopted March 25, 1994

Vessels:	U.S. Tug DUKE LUEDTKE, O.N. 216022, 68.7 Feet Long, 73 Gross Tons, Built in 1917, Uninspected Coast Guard Utility Boat, CG 41487, 41 Feet Long
Accident Type:	Sinking
Location:	Lake Erie, about 13 Miles North of Avon Point, Cleveland, Ohio(Latitude 41 °43.6'N, Longitude 81 °58.6'W)
Date:	September 21, 1993
Time:	Approximately 0033, Local
Owner:	Luedtke Engineering Company, Frankfort, Michigan
Property Damage:	In Excess of \$250,000.00 (Total Loss)
Injuries:	3 (Minor)
Deaths:	1
Complement:	3 (Tug), 5 (Coast Guard Boat)

Description of the Accident

At 1930¹ on September 20, 1993, the commercial tug DUKE LUEDTKE departed West Harbor, Ohio, en route to Ashtabula, Ohio. It was a typical Great Lakes harbor tug, steel hulled, and of both riveted and welded construction.

The wind was coming out of the west at 6 knots, and the seas were 2 to 4 feet. The air temperature was 63° F, and the water temperature was 70° F. Visibility was 4 miles.

Three persons were on board, the operator and two deckhands. After getting underway, the operator made routine hourly checks of the engineroom to ensure that everything was operating properly. At 2300 he noted 3 feet of water in the engineroom, whereas he had observed no water during his previous check at 2200. He looked for but could not determine the source of the flooding.

¹All times are Eastern daylight time and are based on the 24-hour clock.

At 2337, the DUKE LUEDTKE was about 13 miles north of Avon Point, Ohio, when the operator transmitted a distress call on VHF/FM channel 16, reporting his vessel was taking on water and required assistance. The distress call was immediately answered by the communications watchstander at Coast Guard Station Cleveland Harbor, Ohio. The tug operator told the watchstander that the water in the engineroom at that time was about 3 feet deep. Later, at 2355, he advised the watchstander that the level had increased to 5 feet.

At 2340, Coast Guard Station Cleveland Harbor dispatched the 41-foot utility boat (UTB) CG 41487 with a crew of five (a coxswain, an engineer, and three crewmembers) to render assistance. Before getting underway, the coxswain reported to the watchstander for a briefing. The watchstander advised him of the vessel's identity, type, and location and that the vessel was taking on water.

The coxswain did not talk to the tug operator while en route, nor did the coxswain talk to the operator when the UTB arrived on scene. The tug operator stated that as soon as the UTB was alongside, it was secured to the forward port side of the tug.

Unknown to the operator, two Coast Guard crewmembers immediately boarded the tug and asked one of the tug's deckhands for directions to the engineroom. The crewmembers entered the compartment above the engineroom through a watertight door on the port side, slightly aft of amidships, closing the door behind them.

About 90 seconds after the UTB came alongside, the tug heeled to port and sank stern first. Both of the crewmembers who had boarded the tug were trapped in the area above the engineroom when the tug sank.

Earlier, the tug operator had instructed his two deckhands to don their survival suits and stay on the main deck. Both were on the port bow of the tug when the UTB came alongside. As the tug started to sink, one of the deckhands jumped from the tug to the bow of the UTB and was helped aboard. The other deckhand jumped into the water and was rescued shortly thereafter by the UTB. The tug operator escaped through a window of the wheelhouse into the water and was rescued by the CG 41391, a UTB from Coast Guard Station Lorain, Ohio, that had also responded to the incident. He was transferred to the Cleveland Harbor UTB and later taken to a Cleveland hospital, where he was admitted and treated for chest pains.

One of the UTB crewmembers who had boarded the tug managed to escape from the engineroom area through a forward bulkhead door leading through the galley and up to the wheelhouse. He escaped by breaking out a window in the wheelhouse and swimming to the surface. He was rescued by the Cleveland Harbor UTB and transported to the Lorain County Hospital by a Coast Guard helicopter from Coast Guard Air Station, Detroit, Michigan. The other Coast Guardsman remained missing. Searches were conducted by various Coast Guard units, civilian helicopters, and civilian agency vessels throughout the night. Additional Coast Guard helicopters joined the search at daybreak and continued the search for him throughout the day with no success. On September 22, 1993, his body was recovered from the tug in the area above the engineroom by divers from a civilian salvage company. They were helped by divers

from the Cleveland and Lorain police departments.

The Cleveland Harbor Station's communications watchstander was responsible for executing a search and rescue (SAR) Incident Summary form² when he received the tug's call for Coast Guard assistance. The form has a case data section that includes information to be obtained and entered under the heading "Initial Severity." The SAR Incident Summary form executed during this case had no entry under "Initial Severity." The watchstander stated that there was no sense of urgency in the voice of the tug operator when he was talking on the radio; therefore, the watchstander did not consider the situation to be life threatening. Consequently, when the coxswain reported to the watchstander for a briefing of the accident, the coxswain was not made aware that the tug was in danger of sinking, only that it was underway and taking on water.

The coxswain stated that he initially believed that he was on a routine case that could be resolved by putting two of his crewmembers on board to assess the situation, stop the flooding if possible, and pump out the flooded compartment with a portable pump.

The coxswain stated that when the UTB arrived on scene, the tug did not appear to him to be in danger of sinking. When questioned about how he made this assessment, he stated that the vessel was riding smoothly and rolling slowly. He further stated that because the vessel was not listing, he did not think it was in danger of sinking.

When the two crewmembers boarded the tug, the surviving crewmember stated, he noticed there was about a foot of water on the after main deck of the tug. He said that when they entered the engine room, the other crewmember closed the door so that the water on deck would not enter the engine room. The tug had already sunk to a level above the freeing ports³ aft, allowing water to accumulate on the main deck.

Probable Cause

The National Transportation Safety Board determines that the probable cause of the sinking of the tug boat DUKE LUEDTKE was the flooding of the vessel's engine room from an unknown source. Contributing to the loss of life was the Coast Guard's failure to provide proper risk assessment training to Station Cleveland Harbor search and rescue personnel.

² A form used to record important data and information about the vessel in distress. The form is vital for ensuring that cases are properly assessed and prosecuted.

³ An opening in the side plating of a vessel close to the main deck that allows water washing on deck to run freely overboard.